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ABSTRACT

This guide is intended to provide a basic outline for developing local mathematics programs. It was developed to give Kansas mathematics teachers from grades K-12 minimal sequential experiences in implementing the skills, values, and concepts of the mathematics program. The guide contains objectives, a checklist of topics appropriate for each grade level, and a human resources guide which provides the names of individuals willing to serve as technical assistants to local school districts. (MK)

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GUIDELINES FOR TEACHING

MATHEMATICS K-12

BEST COPY AVAILABLE

STATE DEPARTMENT OF EDUCATION
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TOPEKA, KANSAS 66612

SE 089 137

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June, 1979

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How to Score Items

This Mathematics Guide has been developed to give Kansas math teachers from grades K-12 minimal sequential experiences in implementing the skills, values, and concepts of the mathematics program.

The purpose of the guide is to provide a basic outline for developing a local program.

As you will notice there is a checklist on the left side of each page in the Mathematics Guide. In order to have a comprehensive sequencial guide we felt this checklist would be helpful.

We suggest that these symbols be used as follows:

Skill and/or concept MASTERED

Skill and/or concept PARTIALLY MASTERED

Skill and/or concept TAUGHT, NOT MASTERED

Please see the example below which shows how one kindergarten student could be scored on page 1 of this guide. The sample shows that in 1979, this child mastered size and color under sorting, partially mastered shape, and was taught texture but it was not mastered.

Year	Year
1979	
⊗	
⊘	
○	
⊗	

A. Sorting

1. size
2. shape
3. texture
4. color

Math Committee

Serving as members of the Mathematics Advisory Committee for the development of the state math checklist booklet were math educators, elementary classroom teachers, secondary classroom teacher, administrators, and mathematitions. Individually and collectively their counsel, comments, and constructive criticism proved to be a sound basis for the development of this checklist booklet.

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Mathematics Guide

Overall Goal:

To develop a positive attitude toward mathematics.

To develop mathematical skills which will enable the students to effectively pursue a career of his/her interest and ability.

KINDERGARTEN

OBJECTIVE: Using the appropriate vocabulary, the student will begin to develop a basis to form concepts in sorting, counting, matching, sizing and patterns at the kindergarten level.

Year	Year

A. Sorting

1. size
2. shape
3. texture
4. color

B. Rote counting

1 - 20

C. Matching

1. numerals (1-10) to a number of a set
2. size relationship
3. shape relationship
4. matching of sets
5. one to one

D. Size

1. comparison
2. ordering

E. Patterns

1. comparison
2. sorting
3. matching
4. size
5. texture

Year	Year

F. Calendar (awareness)

1. days
2. weeks
3. months

FIRST GRADE

OBJECTIVE: Using the appropriate vocabulary, the first grade student will review, acquire and extend basic concepts of sorting, counting, matching, ordering and patterns; with the introduction of reading and writing numbers, computation, place value, measurement, fractions, and geometry.

Year	Year

A. Reading and writing numbers

1. counting
   a. 1-100
   b. 2's - 20
   c. 5's - 100 (orally)
   d. 10's - 100 (orally)
2. recognize and read number words, 0-10
3. read and write whole numbers, 0-100
4. arranging whole numbers in order, 0-100
5. ordinals, 1st-6th

B. Place value

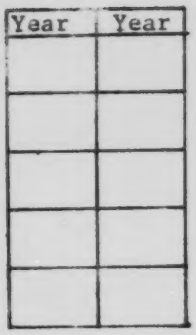
1. regrouping - sorting, ordering, comparing and patterns (Base 10)

C. Computation

1. using picture problems one through nine
2. addition facts to 10 (addition facts)(family of facts)
3. subtraction facts to 10 (family of facts)
4. three addends single digit

D. Measurement

1. time
   a. hour
   b. half hour



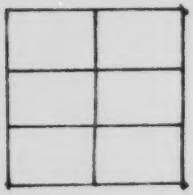
2. money

   a. penny

   b. nickel

   c. dime

   d. counting money

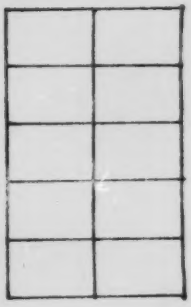


3. calendar

   a. day

   b. week

   c. month



4. metric

   a. length

      1) centimeter

      2) meter

   b. temperature

      1) celsius

E. Geometry

1. recognition of a square, circle, triangle and rectangle

F. Fractions

a. recognizing fractional parts of a whole (example: fold paper in half, cut an apple in half, & etc.)

SECOND GRADE

OBJECTIVE: Using the appropriate vocabulary, the second grade student will review, and extend previous skills of reading and writing numbers, place value, computation, measurement, geometry and fractions.

Year	Year

A. Reading and writing numbers

1. counting
   a. 1's - 100
   b. 2's - 100
   c. 5's - 100
   d. 10's - 100
2. recognize and read number words, 0-20
3. read and write whole numbers, 0-999 (3 digit numbers)
4. arranging whole numbers in order, 0-999 (3 digit numbers)
5. ordinals, 1st-6th
6. recognizing odd and even numbers

B. Place value

1. regrouping - sorting, ordering, comparing and patterns
2. 1's, 10's and 100's (introduce)

C. Computation

1. addition facts to 18
   a. 2 addends
   b. 3 addends
2. renaming
3. addition sentences (families of facts)
4. subtraction facts to 18 (same as above)

Year	Year

5. using picture problems 1 through 18
6. Add two digit number with a one digit number without renaming.
7. Subtract a one digit from a two digit number without regrouping.

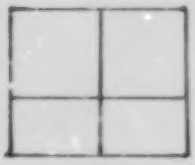
D. Measurement

1. time
   a. hour
   b. half hour
   c. quarter hour
2. money
   a. recognize value of:
      1) penny
      2) nickel
      3) dime
      4) quarter
      5) half dollar
   b. counting
3. calendar
   a. day
   b. week
   c. month
   d. year
4. metric
   a. length
      1) centimeter
      2) meter
   b. temperature
      1) celsius

Year	Year

c. weight (introduce)

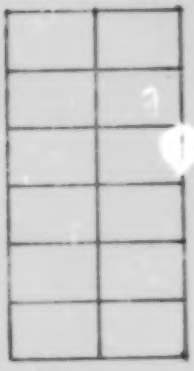
1) kilogram



E. Geometry

1. recognition of a square, circle, triangle, rectangle and 3 dimensional object

2. open and closed figures



F. Fractions (recognize fractional numeral)

1. 1/2

2. 1/3

3. 1/4

4. 3/4

5. 2/3

6. Divide sets (1/2, 1/3, 1/4, 2/3) (using concrete sets)

THIRD GRADE

OBJECTIVE: Using the appropriate vocabulary, the third grade student will review and extend previous skills and develop basic concepts: for graphs and charts, fractions, multiplication of whole numbers, division of whole numbers, reading and writing of numbers.

Year	Year

A. Reading and writing numbers

1. counting
   a. 0-1,000
   b. 2's
   c. 5's
   d. 3's
   e. 4's
   f. 10's
2. recognizing and reading words - 0-1,000
3. reading and writing whole numbers - 0-1,000
4. reading and writing fractions with 1 digit denominator
5. order whole numbers - 0-1,000
6. order fractions (no more than two fractions at a time)
7. ordinals
   1st through 20th
8. Roman numerals (I, V, X)

B. Place value - regrouping through 1,000's (four digits)

C. Computation

1. addition
   a. sums to 18
   b. add 3 or more 1 digit numbers
   c. add 2, 2 digit numbers without renaming

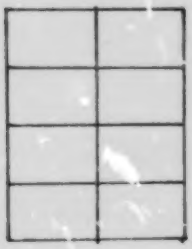
Year	Year

d. add 2, 2 digit numbers with renaming

e. add 20 or more numbers with sums up to 1,000

f. commutative and associative

2. subtraction



a. subtraction facts to 18

b. subtraction without regrouping for 2 digit numbers

c. subtraction with regrouping for 2 digit numbers

d. subtract numbers with 3 or more digits

3. multiplication

a. products to 36

1) 2's

2) 3's

3) 4's

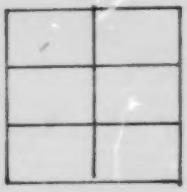
4) 5's

5) 6's

b. product of zero

c. commutative and associative

4. division



a. dividends to 18

b. dividends to 36

5. apply to picture problems

D. Measurement

1. time

a. hour

b. half hour

c. quarter hour

d. minutes

2. money

Year	Year

a. knowledge of coins

b. making change up to $1.00

c. problems involving money

3. calendar

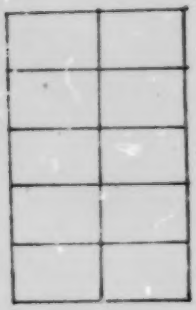
4. metric

a. linear

b. weight

c. temperature

E. Geometry



1. recognize

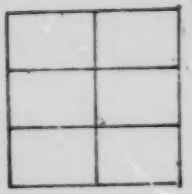
a. circle

b. triangle

c. square

d. rectangle

F. Fractions



1. compare fractions with like denominators

2. add fractions with like denominators (sums less than 1)

3. find a fractional part of a whole

G. Graphs and charts

1. recognize picture graphs, bar graphs and circle graphs

FOURTH GRADE

OBJECTIVE: Using the appropriate vocabulary, the fourth grade student will review and extend previous skills of: reading and writing numbers, place value, computation, measurement, fractions, geometry and graphing.

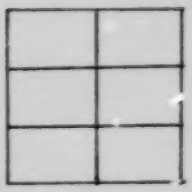
Year	Year

A. Reading and writing numbers

1. round to the nearest 10's
2. round to nearest 100's
3. round to nearest 1000's

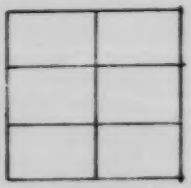
B. Place value

1. regrouping through 10,000's
2. regrouping through 100,000's

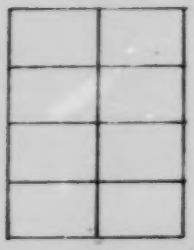


C. Computation

1. Add (commutative and associative)
   a. Add 3 or more numbers
   b. Add two 2-digit numbers with renaming



2. subtraction
   a. zero as a subtrahend or difference
      1) two regrouping
      2) more than two renamings



3. multiplication (associative and commutative)
   a. products to 81
      1) 7's
      2) 8's
      3) 9's

Year	Year

b. a two or more digit number by a one digit with no carrying

c. two digit number by a one digit number with carrying

d. three digit number by a one digit number with carrying

e. two digit number by a two digit number without carrying

f. two digit by a two digit with carrying

g. three digit by a two digit without carrying

h. three digit by a two digit with carrying

4. division

a. dividends through 81

1) divide two digit number by one digit number with no remainder

2) divide multiple of 10 by one digit number with no remainder

3) two digit divisors

D. Measurement

1. time

a. hour

b. half hour

c. quarter hour

d. minute

e. second

2. Metric

a. linear - meter, kilometer, decimeter, centimeter, millimeter

b. liter - liter, milliliter

c. weight - kilogram, gram, milligram

d. temperature - celsius - freezing point, boiling point, body temperature

e. application of metric system

Year	Year

3. Money

   a. making change (up to $10.00)

   b. problems with money using regrouping

   c. money problems relating to everyday living involving use of dollar sign and decimal point

E. Geometry

1. lines

2. line segments

3. angles

4. right angles

5. points inside, outside and on a circle

6. lines of symmetry

F. Fractions

1. addition and subtraction with like and unlike denominators

2. finding fractional part of a whole

G. Graphs and charts

1. interpretation of maps, line graphs, bar graphs, picture graphs and charts

H. Problem solving

1. one step problem solving with the above

FIFTH GRADE

OBJECTIVE: Using the appropriate vocabulary, the student will review and extend previous skills of: reading and writing of numbers, understanding of decimal system by determining place value, computation, fractions, decimal fractions, geometry, graphing, using problem solving approaches in a meaningful way.

Year	Year

A. Reading and writing numbers

1. rounding to nearest 10's
2. rounding to nearest 100's
3. rounding to nearest 1000's

B. Place value

1. regrouping through 10,000's
2. regrouping through 100,000's
3. regrouping through 1,000,000's

C. Computation

1. addition of five digit numbers with renaming
    a. commutative and associative properties by addition
2. subtraction of five digit numbers with regrouping
    a. zero as a subtrahend or difference
        1) more than two renaming
3. multiplication
    a. three digit multiplication
    b. review of basic facts
    c. role of zero and one in multiplication
4. division
    a. division by three digit number with remainder
    b. estimation of quotients and products

Year	Year

5. application

   a. develop word problems

   b. solve real-life problems

   c. two step problems

D. Measurement

1. Money

   a. computing with money, example calculating allowance increase over a period of 5 years

2. Metric

   a. linear

   b. capacity weight

   c. temperature (precision)

      1) degrees celsius

      2) freezing point

      3) boiling point

      4) body temperature

   d. comparison of metric unit places values

      1) linear

         a) kilometer-km

         b) hectometer-hm

         c) dekameter-dam

         d) meter-m

         e) decimeter-dm

         f) centimeter-cm

         g) millimeter-ml

      2) capacity

         a) kiloliter-kl

Year	Year

b) hectoliter-hl

c) dekaliter-dal

d) liter-l

e) deciliter-dl

f) centiliter-cl

g) milliliter-ml

3) weight

a) kilogram-kg

b) hectogram-hg

c) dekagram-dag

d) gram-g

e) decigram-dg

f) centigram-cg

g) milligram-mg

3. addition and subtraction with metric units

E. Geometry

1. properties of solid figures

a. rectangular

b. cones, spheres, cylinders, pyramids

2. lines

a. parallel

b. intersecting

c. symmetry

d. angles

e. rays

F. Fractions

1. from two fractions find equivalent fractions with common denominator

Year	Year

2. write fraction in simpliest form

3. express a fraction as a whole or mixed number

4. express a whole or mixed number as a fraction

5. add or subtract fractions 2 through 12

6. given two mixed numbers with denominators 2 through 12, find the sum or difference

7. find the sum or difference of two mixed numbers with denominators 2 through 12

G. Decimals

1. write a two digit decimal and tell the value of each digit

2. add two numbers with two digit decimal

3. subtract two numbers with two digit decimals

H. Graphs and charts

1. be able to use chart or table in gathering information for every day situations

2. be able to use a bar graph and communicate the meaning for everyday use

I. Problem solving

1. One step problems with above

SIXTH GRADE

OBJECTIVE: Using the appropriate vocabulary, the student will review and extend previous concepts and skills with emphasis on computational skills with three place multipliers and divisors and multiplication and division of decimals and fractions.

Year	Year

A. Reading and writing numbers

1. rounding to nearest 1000's

B. Place value

1. regrouping to 1,000,000
2. as powers of 10

C. Computation of whole numbers

1. addition
   a. addition to billions with renaming
   b. commutative and associative properties by addition
2. subtraction
   a. subtraction to billions with regrouping
   b. positive, negative numbers
3. multiplication
   a. review basic number facts
   b. review three place multipliers
4. division
   a. review three place division with remainders
   b. division as inverse of multiplication
   c. commutative, associative and distributive properties
5. postive and negative numbers (introduce)

Year	Year

6. estimation
   a. addition
   b. subtraction
   c. multiplication
   d. division
7. average

D. Fractions

1. reduce to lowest fraction terms
2. addition with least common denominator
3. subtraction with least common denominator
4. multiply
   a. fraction by whole numbers
   b. whole number by a mixed number
   c. fraction by a fraction
   d. fraction by a mixed number
   e. mixed number by a mixed number
   f. multiplication of more than two factors
5. division
   a. fraction by whole numbers
   b. whole number by a mixed number
   c. fraction by a fraction
   d. fraction by a mixed number
   e. mixed number by a mixed number

E. Decimals

1. adding two 3-place decimals
2. subtracting three place decimal from a two place decimal
3. multiplying of a two place decimal by three place decimal point

Year	Year

4. dividing one, two, three-place decimal by whole number

F. Ratio and proportion

1. operations

a. equivalent ratio

b. ratio to compare two numbers

G. Percent

1. operation

a. percent of whole numbers

b. one number as a percent of another

c. number when percent and percentage are known

d. convert fraction to percentage

e. convert decimal to percent

f. convert percent to decimal

2. word problems using percent and percentage

H. Measurement

1. Metric

a. review of previous units

b. area

1) square centimeter

2) square meter

3) hectare

c. weight

1) metric ton

2. Money

a. dealing with money in percent and percentage

I. Geometry

1. line segments and rays

Year	Year

2. congruence of segments

3. rays and angles

4. introduction to measurement of angles with protractor

5. perimeter

6. area

J. Graphs

1. number pairs

2. introduction to data application

K. Problem solving

1. two step problems with above

SEVENTH GRADE

OBJECTIVE: Using appropriate vocabulary, the student will review and extend previous concepts and skills with emphasis on addition, subtraction, multiplication, and division of whole numbers, metric, fractions, decimals and percent.

Year	Year

A. Reading and writing numbers

1. rounding of

a. units, tens, hundreds, etc.

b. tenths, hundredths, etc.

B. Place value

1. regrouping to 1,000,000

2. expontential notation

C. Computation (whole numbers)

1. addition

2. subtraction

3. use of zero in subtraction

4. multiplication

5. division

6. zero in the quotient in division

7. mean

8. problem solving in whole numbers

D. Measurement (precision)

1. metric system

a. perimeter - square, rectangle, triangle

b. area - square, rectangle, triangle, circle

c. volume - rectangular solid

Year	Year

d. circumference of a circle

E. Geometry

1. knowledge of simple plane figures and polygons
2. knowledge of points, lines, segments, rays
3. knowledge of planes
4. knowledge of angles

F. Fractions

1. changing an improper fraction to a mixed number
2. changing a mixed number to an improper fraction
3. reduce to lowest terms
4. use of the common denominator
5. addition
6. subtraction
7. multiplication
8. division
9. division with complex fractions
10. problem solving with fractions

G. Decimals

1. addition of decimals
2. subtraction of decimals
3. multiplication of decimals
4. division without decimal point in divisor
5. division with decimal point in the divisor
6. multiplication by 10, 100, 1000, etc.
7. division by 10, 100, 1000, etc.
8. computation to the nearest 1/10, 1/100, 1/1000, etc.
9. use of money
10. problem solving with decimals

Year	Year

H. Percents

1. finding a percent
2. percent of a number
3. finding the total or base
4. percent to decimal or fraction

I. Problem Solvings

1. analysis of

EIGHTH GRADE

OBJECTIVE: Using the vocabulary developed in the previous grades, the student will apply developed concepts and skills to the idea that mathematics is a unifying system.

Year	Year

A. Reading and writing numbers

1. rounding off
    a. units, tens, hundreds, etc.
    b. tenths, hundredths, etc.
2. recognition of negative and positive numbers

B. Place value

1. regrouping to 1,000,000
2. as power of 10

C. Computation

1. addition
2. subtraction
3. use of zero in subtraction
4. multiplication
5. division
6. zero in the quotient in division
7. problem solving in whole numbers

D. Geometry and measurement

1. metric system - practical application and problem solving
2. perimeter - square, rectangle, triangle
3. area - square, rectangle, triangle, circle
4. volume - rectangular solid

Year	Year

5. circumference of a circle
6. plane figures
   a. line
   b. segment
   c. angles
   d. ray
7. problem solving
   a. practical application

E. Fractions

1. changing an improper fraction to a mixed number
2. changing a mixed number to an improper fraction
3. reducing down
4. use of the common denominator
   a. greatest common denominator
   b. lowest common multiple
5. addition
6. subtraction
7. multiplication
8. division
9. division of complex fractions
10. problem solving with fractions

F. Decimals

1. addition of decimals
2. subtraction of decimals
3. multiplication of decimals
4. division by whole numbers
5. division by decimal numbers

Year	Year

6. multiplication by 10, 100, 1000, etc.
7. division by 10, 100, 1000, etc.
8. computation to the nearest 1/10, 1/100, 1/1000, etc.
9. convert decimal to fraction

G. Percents

1. finding a percent
2. percent of a number
3. finding the total or base
4. percent to decimal or fraction
5. problem solving
   a. practical application

H. Directed-signed numbers

1. integers
   a. addition
   b. subtraction

The following items are suggested but area should not be limited.

I. Practical applications

1. wages
2. take-home pay
3. change from purchase
4. draw up simple budget
5. estimation of probable results in multiple purchases
6. cost per unit
7. rate and time, find the distance
8. figure simple interest
9. balancing checkbook figures
10. figure area of rectangular surface
11. knowing cost of item, how much must be saved each week to pay for it
12. figure sales tax

HIGHER GRADES

OBJECTIVE: Using the vocabulary developed in the previous grades, the student will be able to apply previously developed concepts and skills to the idea mathematics is a unifying system in algebra, general mathematics and etc.

Year	Year

Guidelines for General Math

1. Four Basic Operations of Arithmetic

a) Whole numbers
b) Decimals
c) Fractions

2. Estimation Process for Four Basic Operations of Arithmetic

a) Whole numbers
b) Decimals
c) Fractions

3. Read and Write Whole Numbers, Decimals, and Fractions

4. Ratio and Proportion

a) Write ratios
b) Simplify ratios
c) Compare ratios
d) Write proportions
e) Solve proportions
f) Problem solving involving proportions

5. Percents

a) Meaning of Percent
b) Writing percents as decimals
c) Writing decimals as percents
d) Writing percents as fractions
e) Writing fractions as percents
f) Estimating percents
g) Finding percent change
h) Finding percent of a number

6. Informal Geometry

a) Identify point
b) Identify line
c) Identify line segment
d) Identify kinds of lines
e) Identify kinds of angles

7. Measurements

a) Measure lengths (inches, feet, yards, miles, millimeters, centimeters, meters, and kilometers)
b) Measure angles (degrees)

Year	Year

c) Find areas of squares, rectangles, parallelograms, and triangles in English and metric systems
d) Find volumes of cubes, rectangular prisms, and cylinders in English and metric systems
e) Find perimeters of squares, rectangles, parallelograms, and triangles in English and metric systems
f) Measure weights (ounces, pounds, grams, miligrams and kilograms)
g) Measure capacity (cups, pints, quarts, gallons, milliliters, liters, and kiloliters)

8. Compare Measurements

a) Inches and centimeters
b) Yards and meters
c) Miles and kilometers
d) Quarts and liters
e) Pounds and kilograms
f) Fahrenheit and celsius temperature

9. Statistics

a) Find mode
b) Find median
c) Find mean
d) Read bar graphs, line graphs, and circle graphs
e) Make bar graphs, line graphs, and circle graphs
f) Find probability

10. Everyday Mathematics

a) Make change
b) Find commission
c) Figure payroll
d) Interpret a paycheck stub
e) Make out bills
f) Make a budget
g) Figure monthly payments
h) Compare prices
i) Make out deposit slips
j) Use a checking account
k) Compute sales tax
l) Compute property tax
m) Complete 1040A short form income tax
n) Compute simple interest
o) Compute compound interest
p) Compute quarterly interest

Year	Year

Guidelines for Algebra I

1. Language of Algebra

a) Convert words into symbols
b) Convert symbols into words
c) Know basic axioms of algebra (equality, closure of multiplication and addition, commutative of multiplication and addition, associative of multiplication and addition, identity, inverses, and distributive)
d) Relate to fact that basic axioms of algebra form structure of algebra
e) Simplify numerical and variable expressions using order of operations and operations of real numbers

2. Equations

a) Solve equations using one or several transformations
b) Solve fractional equations
c) Solve systems of linear equations
d) Solve equations by factoring

3. Inequalities

a) Transform and find solution sets
b) Know and apply axioms of order and multiplication axiom of order
c) Solve word problems involving inequalities
d) Solve combined inequalities

4. Factor

a) Integers
b) Polynomials
c) By using differences of squares
d) Trinomials
e) To reduce fractions to lowest terms

5. Solve following types of problems

a) Age problems
b) Integers
c) Areas
d) Investment
e) Percent mixture problems
f) Rate of work
g) Uniform Motion

6. Polynomials

a) Addition and subtraction of
b) Multiplying monomials by binomials

Year	Year

c) Powers of monomials
d) Multiplying binomials by binomials

7. Functions and Relations

a) Distinguish between a function and a relation
b) Graph functions and relations
c) Graph linear equations using slope intercept method and/or plotting points
d) Find equation of a line given one point and slope or two points
e) Graph linear inequalities of two variables.

Year	Year

Guidelines for Geometry

1. Basics of Geometry

- a) Define a set
- b) Use roster method or rule method to describe a set
- c) List subsets of a given set
- d) Use Venn diagrams in illustrating unions and intersections of sets.
- e) Find distance between two points
- f) Describe a point, line and plane
- g) Define: space, collinear points, coplanar points, betweeness of points, line segment, length of segment, midpoint of segment bisector of segment, and ray
- h) Define an angle
- i) Measure angles
- j) Define the special angles: acute, right, obtuse, straight, adjacent, vertical, complementary, supplementary, equal and dihedral angles
- k) Define a triangle and its six parts
- l) Define the special triangles: scalene, isosceles, equilateral, acute, obtuse, right, and equiangular triangle
- m) Identify altitude of triangle
- n) Identify median of triangle
- o) Define perpendicular
- p) Define parallel
- q) Define the following quadrilaterals: trapezoid, parallelogram, rhombus, rectangle, and square
- r) Define circle and sphere
- s) Define the following segments and lines in connection with circles and spheres: radius, chord, diameter, secant, and tangent

2. Induction and Intuition

- a) Indicate whether a process used is inductive, intuitive or neither
- b) Apply the processes to basics of geometry

3. Deduction and Proofs

- a) Use deductive reasoning to state a conclusion based on a given statement
- b) Given posulates prove theorems
- c) Use two-column deductive proofs

4. Lines and Planes

- a) Know what determines a line
- b) Know what determines a plane

Year	Year

5. Parallel Lines and Planes

a) Know relationships of lines and planes
b) Identify types of angles equal when two parallel lines are cut by a transversal
c) Show that lines are parallel using proof method

6. Congruent Triangles

a) Define congruent
b) Prove triangles congruent
c) Prove right triangles congruent

7. Similarity

a) Define similarity polygons
b) Given similar figures with some given parts find the unknown parts using proportions
c) Know the properties of special segments in a triangle
d) State the Pythagorean Theorem
e) Apply the Pythagorean Theorem to practical applications
f) Be familiar with 30-60-90 triangle relationships and 45-45-90 triangle relationships.

8. Trigonometry

a) Define sine, cosine, and tangent
b) Use sine, cosine, and tangent functions in practical applications

9. Similarity

a) Define similar polygons
b) Given similar figures with some given parts find the unknown parts using proportions
c) Know the properties of special segments in a triangle
d) State the Pythagorean Theorem.
e) Apply the Pythagorean Theorem to practical applications.
f) Be familar with 30-60-90 triangle relationships and 45-45-90 triangle relationships

10. Trigonometry

a) Define sine, cosine and tangent
b) Use sine, cosine, and tangent functions in practical applications

11. Arcs, Angles, and Circles

a) Find the measure of arcs
b) Find the measure of central angles
c) Know relationship between arc and central angle
d) Define an inscribed angle
e) Find the measure of an inscribed angle
f) Be familiar with angles formed by secants and tangents

Year	Year

12. Constructions

a) Construct an angle equal to a given angle
b) Bisect a given angle
c) Construct a line perpendicular to a given line at a given point on the line
d) Construct a perpendicular to a given line from a given point outside the line
e) Construct the perpendicular bisector of a given segment

13. Areas of Polygons

a) Find the areas of the following: rectangles, parallelograms, triangles, trapezoids, and regular polygons

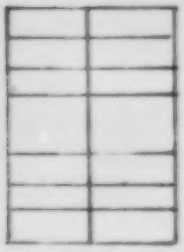
14. Circles

a) Find the area of a circle
b) Find the circumference of a circle

Year	Year

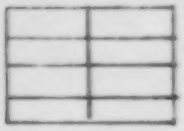
Guidelines for Algebra II

1. Systems of Linear Open Sentences



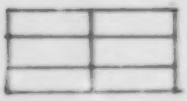
a) Write an open sentence describing a situation
b) Graph linear equations in one and two variables
c) State slope of a line from a given equation or a graph
d) Determine an equation of a line given: slope and point or two points
e) Solve by linear combinations
f) Solve by substitution method
g) Use two variables in solving word problems

2. Rational Numbers and Expressions



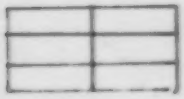
a) Apply laws of exponents
b) Simplify complex fractions
c) Solve fractional equations
d) Solve word problems involving fractional equations

3. Factoring



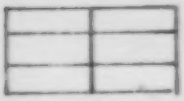
a) Factor monomials, polynomials, and trinomials
b) Use factoring to solve equations and inequalities
c) Apply factor theorem

4. Relation and Function



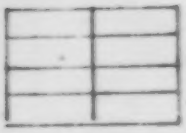
a) Distinguish difference between relation and a function
b) Graph quadratic functions
c) Solve quadratic functions

5. Exponential Functions and Logarithms



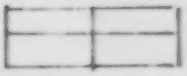
a) Write numbers in scientific notation
b) Define a logarithm
c) Use common logs

6. Irrational Numbers



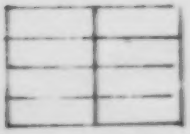
a) Use radicals to express roots
b) Solve quadratic equation for real roots
c) Apply the properties of radicals in simplifying radicals
d) Solve irrational equations

7. Trigonometric Functions



a) Define six fundamental trigonometric functions
b) Apply and evaluate trigonometric functions

8. Vectors



a) Define a vector
b) Find resultants by using scale drawings and trigonometric functions
c) Resolve vectors

APPENDIX A

HUMAN RESOURCE GUIDE

INTRODUCTION

Kansas has a large number of competent educators in the mathematics and science fields. A number of these educators are offering their services as technical assistants to local schools that perceive need for consultative assistance. This directory includes pertinent information about these persons so that schools seeking consultative assistance concerning their mathematics and/or science programs may select those who can best serve their particular needs.

HOW TO USE THIS DIRECTORY

This directory of mathematics and science consultants has been categorized to reflect the level(s) (elementary, secondary, postsecondary, higher education) at which the consultant has indicated he/she most frequently works (Levels Index which precedes the resumés). Within the four levels, skills areas are supplied for each name and names are listed alphabetically (Subject Indexes which follow the resumés). The number opposite the name refers to the page on which the resumé appears.

The resumés have been prepared in a format suitable for computerized retrieval. The key to the determination of a consultant's skills area(s) and more specific grade levels are reflected by the descriptors in the resumé.

The code used to designate the target audience and levels (on resumé) is necessary to meet space requirements for computerization. Please see the following pages for a list of the codes and identification. The codes for both mathematics and science are listed alphabetically in a single list.

More information about the consultant's skills, education, and experience is in the abstract. The abstract also includes two names of reference. Please note, however, that the KEDDS Human Resources file (the technical assistants in mathematics and science are a part of that file) is still in the development stage. Persons are entered in the file as they apply, and time is required to contact and receive letters from references whose names are supplied by the applicant. For that reason, some of the resumés may not include references at this time.

CODE LETTERS FOR TARGET AUDIENCE

MATHEMATICS AND SCIENCE

ADM	Administrators
ADT	Adults
BILED	Bilingual Educators
CARED	Career Educators
CHEMTEA	Chemistry Teachers
COLLSTU	College Students
CUCORD	Curriculum Coordinators
EDUCSPEC	Educational Specialists
ELEM	Elementary Education
ELEMTEA	Elementary Teachers
ENVIRED	Environmental Education
GENPUB	General Public
HIED	Higher Education
HISCHSTU	High School Students
INTM	Intermediate Grades
JRCOLLSTU	Junior College Students
JRHI	Junior High Schools
KDG	Kindergarten
LOCSCHPER	Local School Personnel
MATH	Mathematics
MATHTEA	Mathematics Teachers
MIDSCH	Middle Schools
PARAPROF	Paraprofessionals
PAR	Parents

(continued on next page)

PARGRPS	Parent Groups
PARTUT	Parent Tutors
PARVOL	Parent Volunteers
PHYSICSTEA	Physics Teachers
POSTSEC	Post Secondary Education
PRESERTEA	Preservice Teachers
PRIM	Primary Grades
PRIN	Principals
PROGADM	Program Administrators
PROGDIR	Program Directors
SCHPER	School Personnel
SCI	Science
SCISTUD	Science Students
SCITEA	Science Teachers
SEC	Secondary Education
SECSTU	Secondary Students
SRHI	Senior High
TEA	Teachers
YTHLEAD	Youth Leaders

TECHNICAL ASSISTANTS

Mathematics

(Index to Levels)

	Page	E.	S.	P.S.	H.E.
Beamgard, Bill	1	X	X		
Benson, Sterling O.	2	X			
Berens, Ronald J.	3		X		
Coltharp, Forrest L.	4	X			
Cuppy, Nelda K.	5			X	
DeFries, Pam A.	6	X			
Dorsett, Bessie M.	7	X			
Fernkopf, Forrest D.	8	X			
Gladfelter, Robert G.	9		X		
James, Robert K.	10	X	X		
Jameson, Allen A.	11		X		
Johnson, Ralph L.	12	X	X		
Keiter, Joann E.	13	X	X		
King, Marjorie L.	14	X			
Kurtz, Ray V.	15	X			
Martinson, Donald C.	16		X		
Muller, Adelyn C.	17	X			
Olson, John R.	18		X		
Pickering, Dennis A.	19	X	X		
Riegel, Arvilla C.	20	X			

	Page	E.	S.	P.S.	H.E.
Robb, Gloria A.	21	X			
Roeser, Betty E.	22	X			
Schroeder, Edgar E.	23	X			
Sorenson, Louise N.	24	X			
Truby, Charlotte C.	25	X		X	
Zimmer, Nelson E.	26	X			
Ziska, Phyllis J.	27	X			

RESUME

Kansas Human Resources

KS

Target Audience: TEA, CUCORD, MATH, KDG, ELEM, SEC, PRONEG

Person: Beamgard, Bill, 502 N. Third Street, Atwood, KS 67730 (913) 626-3020

Publications:

Training Recs: Overhead projector

Organization: Mathematics Instructor, Atwood High School, Atwood, KS 67730 (913) 626-3280, USD 318, Atwood, KS

Availability: Fee None; Expenses $23. Prefers weekends; could be available 1 or 2 weekdays, if necessary

Descriptors: Mathematics; Curriculum; Programs; Elementary School Teachers; Secondary School Teachers; Collective Negotiation

Identifiers: Kansas; USD 318, Atwood

Abstract: Presently teaches mathematics in a four year high school at Atwood. Holds Master's degree in school administration and has taken 3 different mathematics curriculum studies. Names specific areas for consultative services as mathematics curriculum and programs, K-12; and professional negotiation activities. Served as professional negotiator for district for 1 year and has been committee member for several years. References: Louis Holaday, District Superintendent and Verle McClellan, Principal, Atwood High School, USD 318, Atwood, Kansas 67330.

Kansas Human Resources

KS

Target Audience: TEA, KDG, ELEM

Person: Benson, Sterling O., 501 W. Saline, Lindsborg, KS 67456 (913) 227-3633

Publications:

Training Rscs: Room with tables; overhead projector; balance scales; metric measuring graduals (for metric workshop)

Organization: Coordinator of Elementary Education, Bethany College, Lindsborg, KS 67456 (913) 227-3312, Ext 19

Availability: Fee $100 per day; Expenses $30 per day plus 15¢ per mile. Has flexible schedule

Descriptors: Mathematics; Mathematics Education; Metric System; Workshops; Elementary School Mathematics

Identifiers: Kansas; Bethany College, Lindsborg

Abstract: Presently is coordinator of elementary education at Bethany College. Has been classroom teacher and college level math teacher. Special skills are listed as mathematics education; elementary school mathematics; and metric workshops. Previous consulting experience includes involvement in the Nebraska Helpmobile project which focused on individualization of mathematics in the intermediate grades and holding metric workshop for teachers in the Kansas National Education Association Uniserve District 1. References: Don Anderson, Executive Director, Uniserv, 101 S. Main, Box 470, Lindsborg, KS 67456; and Dr. T. Von Fange, Bethany College, Lindsborg, KS 67456

End of Abstract

Resume

Kansas Human Resources

KS

Target Audience: TEA, JRHI

Person: Berens, Ronald J., 2818 25th St., Great Bend, KS 67530 (316) 793-7029

Publications

Training Recs

Organization: Department Chairman and Instructor of Mathematics, Junior High School, 2818 25th St., Great Bend, KS 67530, (316) 793-7029, USD 428, Great Bend, KS

Availability: Fee optional; Expenses optional. Availability not listed; contact for times available.

Descriptors: Mathematics; Mathematics Instruction; Junior High School; Learning Activities

Identifiers: Kansas; USD, Great Bend

Abstract: Currently is employed as a mathematics instructor and department chairman in a Great Bend junior High. Describes area of specialization for consultative assistance as the use of calculators in a junior high mathematics program. Has served as a member of evaluating team for the North Central Evaluation Association. References: Glen Erikson, Assistant Superintendent, USD 428, 2408 Jefferson, Great Bend, KS 67530; and William Vossen, Principal, Harrison Junior High School, 1919 Harrison, Great Bend, KS 67530.

End of Abstract

KS

Target Audience ELEMTEA, PARGRPS

Person Coltharp, Forrest L., 1402 W. Homer, Pittsburg, KS 66762 (316) 231-3515

Publications

Training Kits

Organization Professor of Mathematics, Department of Mathematics, Pittsburg State University, Pittsburg, KS 66762 (316) 231-7000, Ext 323

Availability Fee $100-200 per day; Expenses $32 per day. Available three days a week and evenings.

Descriptors Mathematics; Mathematics Education; Metric System; Elementary School Mathematics;

Identifiers Kansas; Pittsubrg State University, Pittsburg

Abstract Responsibilities as professor of mathematics at Pittsburg State University involve both preservice and inservice mathematics education at the elementary level. States areas of specialization are metric education and all facets of elementary school mathematics. Holds Ed. D. from Uklahoma State University. Has furnished consultative service for various school systems throughout Kansas, Missouri and Oklahoma as well as for commercial book companies. References: Dr. Ramona Anschutz, Mathematics and Science Programs Specialist, Kansas State Department of Education, 120 E. 10th St., Topeka, KS 66612; and Ray Kurtz, Professor, Department of Curriculum and Instruction, College of Education, Holton Hall, Kansas State University, Manhattan, KS 66506

End of Abstract

KS

Target Audience: TEA, JRCOLLSTU, POSTSEC

Person: Cuppy, Nelda K., Moran, KS 66755 (316) 237-4522

Publications:

Training Recs:

Organization: Mathematics Instructor, Allen County Community Junior College, 1801 N. Cottonwood, Iola, KS 66749 (316) 365-5116

Availability: Fee not listed; Expenses not listed. Limited availability throughout the school week.

Descriptors: Mathematics; Mathematics Education; Learning Activities; Post Secondary Education

Identifiers: Kansas; Allen County Community Junior College, Iola

Abstract: Currently is mathematics instructor at community junior college. Professional education includes M.S. in mathematics, Pittsburg State University, Pittsburg, Kansas. Has done additional graduate work at other institutions. Specialization area is focused on mathematics education. Has organized annual math relays-contests concerning mathematical topics for community college students and which have proven quite successful. References: Dr. Terry Glenn, Vice-President and Dean of Instruction, Allen County Community Junior College, Iola, KS 66749; and Sam Newland, Community Junior College Specialist, Kansas State Department of Education, 120 E. 10th St., Topeka, KS 66612

End of Abstract

KS

Target Audience: ELEMTEA, MATH, READ

Person DeFries,Pam A., 1510 C Lane, Apt 116, Topeka, KS 66604 (913) 233-1442

Publications

Training Recs

Organization Title I Resource Teacher, Highland Park Elementary School, 2717 Illinois, Topeka, KS 66605 (913) 232-8270; USD 501, Topeka, KS

Availability Fee negotiable; Expenses negotiable. Contact for possible time.

Descriptors Reading; Mathematics; Criterion Referenced Materials; Individualized Programs; Elementary Grades; Learning Laboratories; Remedial Programs; Management

Identifiers Kansas; USD 501, Topeka; Title I; Hoffman Laboratory

Abstract Presently is employed as a Title I elementary school resource teacher. Is in charge of remedial math and reading laboratory (Hoffman) and in direction of two full-time certified aides. Education and/or training includes Hoffman workshops master classes in individualizing of reading. Prefers consulting services assistance in the areas of organization of criterion referenced materials; organization of remedial laboratory; and individualization in mathematics and reading. References: Virgil J. Funk, Principal, Highland Park Elementary School, 2717 Illinois, Topeka, KS 66605; and Wilmer Moffett, Coordinator of Title I, 1601 Van Buren, Topeka, KS 66612.

End of Abstract

KS

Target Audience: ADM, TEA, PARVOL, KDG, ELEM

Person: Dorsett, Bessie M., 3510 South Handley, Wichita, KS 67217 (316) 522-3255

Publications

Training Rscs

Organization: Coordinator of Math Laboratory Aides, Murdock Teachers Center, 670 N. Edgemoor, Wichita, KS 67208 (316) 682-4598, USD 259, Wichita, KS

Availability: Fee not listed; Expenses $25 per day. Available after 4:30 weekdays during school term; workshops and inservice available Saturdays and summers.

Descriptors: Mathematics; Mathematics Instruction; Learning Laboratories; Mathematical Concepts; Volunteers; Teacher Aides; Elementary School Mathematics; Parent Participation; Reinforcement; Training

Identifiers: Kansas; USD 259, Wichita

Abstract: Present job responsibilities involve providing preservice and inservice training sessions for mathematics aides, visiting the mathematics laboratories to monitor the program and assisting the aides in implementation. Received actual training for 3 years as instructional aide and has spent four years as coordinator of math laboratory aides. Was member of a 3-person team from Murdock Center who presented workshop for the Garnett public school system. Also, has worked with parent volunteer groups in USD 259. Areas of specialization include presenting and demonstrating procedures for implementing an innovative math laboratory by utilization of activities which stress reinforcement of mathematical concepts. Also can offer techniques for obtaining volunteer parents and how to provide training sessions for instructional aides. References: Kenneth E. Young, Superintendent of Schools and Danny Harper, District Math Specialist, USD 365, Garnett, KS 66032.

End of Abstract

Resume

Kansas Human Resources

KS

Target Audience: TEA, PRIN, KDG, ELEM

Person: Fernkopf, Forrest D., 2521 Sunset Road, Topeka, KS 66614 (913) 272-1236

Publications:

Training Rscs:

Organization: Principal, Bishop Elementary School, 3601 S.W. 31st St., Topeka, KS 66614 (913) 272-8610, USD 501, Topeka, KS

Availability: Fee none; Expenses $50 per day. Afternoons preferred; could arrange for entire day.

Descriptors: Mathematics; Mathematics Instruction; Open Education; Elementary Grades

Identifiers: Kansas; USD 501, Topeka

Abstract: As principal of Bishop School in Topeka, is responsible for organization, coordination and supervision of elementary grade program. States areas of consulting assistance as the demonstration of a basic handwriting program, K-6, utilizing two kits of film loops; demonstration of basic math factsfilm loops; and presentation of lecture and slide-tape demonstration on open facilities and program of Bishop School. Background for consultative assistance includes demonstrations of handwriting film-loop materials for elementary faculty groups and for college classes. Has also served as a professional consultant to a publishing company. References: Dr. W. R. Oldnam, Director Education Department/Graduate Division, Washburn University, Topeka, KS 66621; and Dr. Owen Henson, Associate Superintendent, Education Division, USD 501, 415 W. Eighth, Topeka, KS 66603

End of Abstract

Resume

Kansas Human Resources

KS

Target Audience: TEA, PHYSED, MATH, SEC

Person: Gladfelter, Robert G., 2516 Moundview, Topeka, KS 66614 (913) 272-9062

Publications:

Training Recs:

Organization: Mathematics Teacher and Tennis Coach, Topeka West High School, 2001 Fairlawn, Topeka, KS 66604 (913) 272-1643, USD 501, Topeka, KS

Availability: Fee $7.00 per hour or $75 per day; Expenses $8.00 food and 15¢ per mile. Prefers the months, December through February and June through August. Evenings Monday - Saturday

Descriptors: Mathematics; Mathematics Instruction; Secondary Grades; Physical Education; Tennis

Identifiers: Kansas; USD 501, Topeka

Abstract: Current job responsibilities include teaching mathematics and coaching tennis for men and women at the secondary level. As mathematics major, received B.A., Washburn University in 1969. Mathematical topics for consultative services are algebra, geometry and alg-trig. Coaching skills focus on the strategy and techniques of tennis. References: Roger L. Dirks, Director of Continuing Education Services, Topeka Public Schools, 1900 Hope St., Topeka, KS 66604; and Donald E. French, Assistant Principal, Topeka West High School, 2001 Fairlawn, Topeka, KS 66604.

End of Abstract

Kansas Human Resources

KS

Target Audience: TEA, SCI, MATH, ELEM, SEC, PRESERTEA

Person: James, Robert K., Westwind Street, Manhattan, KS 66502 (913) 539-5569

Publications:

Training Recs: Can provide any special equipment needed

Organization: Professor, Science and Environmental Education, College of Education, Holton Hall, Kansas State University 66506 (913) 532-5528

Availability: Fee $100 per day; Expenses $35 per day. Generally available.

Descriptors: Environmental Education; Science; Science Education; Metric System; Secondary School Science; Elementary School Science; Performance Based Education; Curriculum; Teacher Education; Workshops; Mathematics

Identifiers: Kansas; Kansas State University, Manhattan

Abstract: As a professor of education, position responsibilities include providing science education for K-12 schools. Bachelor's and advanced degrees were attained in the areas of science education and competency based teacher education. Describes specialization areas as curriculum design, implementation, and evaluation; implementation of competency based education; workshops and consultant activities related to change in the elementary school science curriculum and secondary level science education; and workshops/consulting assistance on the metric system. Has had consulting experience in all of the described areas. References: Louis L. Hendricks, Field Representative, Silver Burdett Book Co., R.R. 1, Wamego, KS 66547; and Leslie S. Weller, Superintendent of Schools, USD 487, Herington, KS 67449.

End of Abstract

Resume

Kansas Human Resources

KS

Target Audienc MATH, CARED, TEA, SRHI

Person Jameson, Allen A., R.R.2, Box 283, Pittsburg, KS 66762 (316) 231-4275

Publications

Training Rscs

Organization Mathematics Teacher, Pittsburg High School, 1310 N. Broadway, Pittsburg, KS 66762 (316) 231-2400, USD 250, Pittsburg, KS

Availability Fee $100 per day; Expenses $35 per day plus mileage. Available weekends December through May (evenings if distance is not too great).

Descriptors Mathematics; Secondary Grades; Career Education; Practical Mathematics

Identifiers Kansas; USD 250, Pittsburg

Abstract Currently is a teacher of mathematics, including the traditional courses and career math, at Pittsburg High School. Special skills focus is a non-book oriented approach to teaching of math which relates to need to survive day-to-day living (includes involvement of members of the community in the process). Has provided inservice presentation (1976) for Wichita Public Schools and made presentation at the 1977 Kansas National Education Association state convention. Also has had visitors from other schools to learn about the Pittsburg Program. References: Gail Garrison, USD 250, Pittsburg, KS 66762 and David Huffman, Ass't Superintendent, Board of Education USD 250, 510 Deill, Pittsburg, KS 66762.

End of Abstract

Resume

Kansas Human Resources

KS

Target Audienc ADM, TEA, MATH, READ, ELEM, SEC

Person Ralph L. Johnson, 604 S. 19th, Leavenworth, KS 66048 (913) 682-5431

Publications

Training Rscs

Organization Director, Special Services, USD #453, 624 Olive, Leavenworth, KS 66048 (913) 682-5971

Availability No fees; Expenses $35 - $40 per day; plus 13¢ per mile. Available as schedule allows.

Descriptors Diagnostic Teaching; Elementary Education; Mathematics; Secondary Education; Reading; Reading Diagnosis; Reading Skills; Remedial Programs

Identifiers Kansas; USD #453, Leavenworth; Project Pegasus; Title I

Abstract Presently serves USD #453 as Director of Title I programs, school health services, adult education and assists with inservice and curriculum. Special skills areas include Project Pegasus, a management system for the teaching of elementary reading skills, and Title I diagnostic/prescriptive teacher concept applied to local Title I reading and math programs. Holds an M.S. in psychology and administration and has completed additional graduate work in remedial reading, learning disabilities and curriculum. Participated in training for the Pegasus program. References: Frank Kukuk, Supt. and Dr. Truman Burton, Ass't Supt., USD #453, 624 Olive Street, Leavenworth, KS 66048

End of Abstract

Resume

Kansas Human Resources

ID:

Target Audience: TEA, READ, MATH, READPROGADM, ELEM, SEC

Person: Keiter, Joann E., 423 Mimosa Drive, Haysville, KS 67060 (316) 522-3574

Publications:

Training Recs:

Organization: Director of Title I and Reading Specialist, USD 260, Administrative Offices, 120 E. Washington, Derby, KS 67037 (316) 788-2877

Availability: Fee $100 per day; Expenses $50 per day. Available upon request for services.

Descriptors: Elementary Grades; Remedial Mathematics; Remedial Reading; Secondary Education; Program Administration; Reading; Mathematics; Reading Programs

Identifiers: Kansas; USD 260, Derby; Title I

Abstract: Currently holds position as reading specialist and director of Title I. Received M.S., elementary education (reading) and has done postgraduate work at several Kansas universities. Previous professional experience includes teaching elementary level; reading specialist; reading consultant and director of Head Start. Consultant services are preferred in the areas of administration of reading; Title I math; and remedial reading. References: H. Bruce Quantic, Assistant Superintendent Instruction, USD 260, 120 E. Washington, Derby, KS 67037; and Richard L. Watson, Director, Reading Services Center, Wichita State University, 1847 N. Chautauqua, Wichita, KS 67214.

End of Abstract

KS

Target Audience: TEA, KDG, ELEM

Person: King, Marjorie L., 232 Willoesque, Wichita, KS 67209 (316) 943-8338

Publications:

Training Rscs:

Organization: Mathematics Consultant, Murdock Teachers Center, 670 N. Edgemoor, Wichita, KS 67208 (316) 682-4597, USD 259, Wichita, KS

Availability: Fee $12.50 per hour or $100 per day; Expenses $30 per day. Workshops: afternoon 4:30-6:30; Saturdays 9:00-4:00; Summers, advance scheduling

Descriptors: Mathematics; Mathematics Instruction; Elementary School Mathematics; Manipulative Materials; Reinforcement; Metric System; Cross Age Teaching; Group Activities; Learning Laboratories; Workshops; Consultants

Identifiers: Kansas; USD 259, Wichita

Abstract: Currently a mathematics consultant for a Wichita teachers center. Responsibilities include teacher training (concept development and reinforcement activities) and monitoring of classroom activities concerning ongoing progress of mathematics program. Has attained M.S. in educational administration. Lists areas of specialization as development of manipulative materials and of reinforcement materials; awareness workshops in metrics; crossgrade level groupings and methods for recording student progress; presentation of small group activities and center-developed techniques; and classroom organization ideas. Consulting experience includes assistance in elementary math methods, 4 Kansas colleges; assistance in developing Title I math program, Garnett Schools; workshops in Haysville and Derby; and metric workshop, Tahlequah, OK. References: Coker J. Denton, Chairman Elementary Education Department, College of Behavioral Sciences, Northeastern Oklahoma State University, Tahlequah, OK 74464; and Danny Harper, District Math Specialist, USD 365, Garnett, KS 66032

End of Abstract

KS

Target Audience: ELEMTEA, GENPUB

Person: KURTZ, Ray V., 1805 Alabama Lane, Manhattan, KS 66502 (913) 539-6082

Publications: Who Should Place College Freshmen in Mathematics? Mathematics Teacher November69; Fourth Grade Division: How Much is Retained in Grade Five? Arithmetic Teacher January73; Diagnosis of Computational Difficulties, Bulletin of The Kansas Association of Teachers of Mathematics, Spring73; In-Service Training for Professionals, Educational Considerations, Fall74 A Model Program for an Integrated Mathematics-Science Classroom, School Science and Mathematics Journal, March75; The Metric Challenge, Kansas School Board Journal, July75.

Training Rscs:

Organization: Professor, Department of Curriculum and Instruction, College of Education, Holton Hall, Kansas State University, Manhattan, KS 66506 (913) 532-5931

Availability: Fee varies according to situation, $100 per day (for commercial work); Expenses actual incurred. Normally available with some advance notice.

Descriptors: Mathematics, Comparative Education; Metric System; Elementary Grades; Learning Activities

Identifiers: Kansas; Kansas State University, Manhattan

Abstract: As a professor in curriculum and instruction department instructs classes in the teaching of mathematics at the elementary and middle school levels. Attained Ed.D., University of Nebraska in 1967. Has taught primarily at the college level. Designates areas of specialization for consulting as metrics (work session or talk); hand-held calculators (work session or talk); minimal competencies in math (talk); why are our mathematics scores dropping? (talk); elementary grades education in England (talk with slides); and selection of creative students with mathematical activities (talk and work session). References: Adelyn C. Muller, Mathematics Specialist, Mathematics Resource Center, 5300 W. 86th St., Shawnee Mission, KS 66207; and Forrest L. Coltharp, Professor of Mathematics, Department of Mathematics, Pittsburg State University, Pittsburg, KS 66762

End of Abstract

KS

Target Audience: TEA, SRHI, JRHI

Person: Martinson, Donald C., 1144 N. Gordon, Wichita, KS 67203 (316) 942-7120

Publications

Training Recs

Organization: Mathematics Teacher, Wichita North High School, 1437 N. Rochester, Wichita, KS 67203 (316) 264-7351, USD 259, Wichita, KS

Availability: Fee $25 per hour or $85 per day; Expenses $25 and 15¢ per mile. Available Saturdays; Possible leave from school duties if requested far enough in advance

Descriptors: Mathematics: Discovery Processes; Mathematics Curriculum; Secondary School Mathematics; Comparative Education

Identifiers: Kansas; USD 259, Wichita; International Teaching Fellow

Abstract: Present position is teacher of mathematics at Wichita North High School. Had served as the coordinator of the mathematics department prior to spending a year in Australia as an International Teaching Fellow. Previous consultative experiences include math consultant, pre-school institutes for Newton and Derby school systems. In school year 1977, taught Algebra I bilingually. Specializations include presentation of material on the discovery method; assistance in curriculum work; and a presentation comparing the American and Australian schools, based on time spent in Australia. References: Thomas W. Martin, Mathematics Teaching Specialist, Educational Services Building, 640 N. Emporia, Wichita, KS 67214; and Forrest L. Coltharp, Professor of Mathematics, Pittsburg State University, Pittsburg, KS 66762

End of Abstract

KS

Target Audience: TEA, ELEM

Person: Muller, Adelyn C., Lake Quivira, KS 66106, (913) 631-7882

Publications: Various Articles, Arithmetic Teacher; Brochures distributed by the Shawnee Mission school district: Award Winning Cadet Program, Student Teacher Program, and A Systems Approach for Learners in Mathematics; Adaptation of Madame Papy's Mini-Computer, Cuisenaire Reporter; Report on preparation of teachers, SMEAC/Science-Mathematics; IVT series in Mathematics used by Shawnee Mission schools.

Training Recs:

Organization: Mathematics Coordinator, 5300 86th St., Shawnee Mission, KS 66207 (913) 381-8871, USD 512, Shawnee Mission, KS

Availability: Fee $20-25 per hour or $100-150 per day; Expenses $40 per day. Can arrange work schedule with 2 or 3 weeks' advance notice.

Descriptors: Mathematics; Mathematics Curriculum; Basic Skills; Metric System; Learning; Manipulative Materials; Inservice Teacher Education; Behavior Problems; Elementary Grades; Mathematics Instruction

Identifiers: Kansas; USD 512, Shawnee Mission; Cuisenaire

Abstract: Currently is the coordinator of mathematics education for the Shawnee Mission public schools. Attained PH.D., mathematics education, from Kansas State University, 1975. Has diverse background in providing consultative assistance including services furnished at the local school and higher education undergraduate and graduate levels. Has also participated in a number of internationally based conferences. Specialized areas of consulting services would be particularly directed to elementary math teachers, and include the metric system; Piagetian theory and implementation; elementary math curriculum; teacher inservice (general methods); teaching basic skills; learning behavior problems of elementary students; and manipulative materials (especially Cuisenaire). References: Dr. Frank Hendrickson, Principal, Boevers Elementary School, 9134 E. 46th St., Tulsa, Ok 74145; and Dr. Shirley Hill, Professor, University of Missouri at Kansas City, Kansas City, Mo.

End of Abstract

KS

Target Audience: MATHTEA, SEC, GENPUB

Person: Olson, John Royd, 1440 Pine St., Hoxie, KS 67740 (913) 675-3957

Publications:

Training Rscs: Nature of presentation will determine equipment needed.

Organization: Chairman of Department of Mathematics, Hoxie High School, Hoxie, KS, 67740 (913) 675-3286, USD 412, Hoxie, KS

Availability: Fee Flexible-determined by individual situation; Expenses, full payment one-to-one basis. Available throughout year by schedule; Prefers maximum of two days block, including travel time.

Descriptors: Mathematics; Mathematics Curriculum; Secondary School Mathematics; Student Motivation; Learning Activities

Identifiers: Kansas; USD 412, Hoxie

Abstract: Currently is chairman of the department of mathematics, Hoxie High School. Holds Master's degree from the University of Kansas and has a number of hours of post Master's work. Previous consulting experience has been for the Kansas National Education Association UniServ unit at Colby on the subject of calculators; also has served as past chairman for inservice mathematics training, Northwest Kansas League. Lists areas of specialization as calculators in the classroom; programmable calculators as a low cost alternative to computer science; calculator applications; mathematics education; mathematics motivation; mathematics curriculum; the role of high school mathematics; and readings in mathematics for the high school student. References: James L. Davis, Principal, Hoxie High School, Hoxie, KS 67740; and Lou Kirby, Director, Northwest Kansas UniServ District 17, Box 449, Colby, KS 67701.

End of Abstract

KS

Target Audience: ADM, TEA, CUCORD, ELEM, MDSCH

Person: Pickering, Dennis A., R.R. 3, Box 152AA, Pittsburg, KS 66762 (316) 231-1329

Publications:

Training Recs:

Organization: Curriculum Specialist and Assistant Professor, Department of Curriculum and Instruction, Pittsburg State University, Pittsburg, KS 66762 (316) 231-7000 Ext 297

Availability: Fee open; Expenses actual incurred. Contact for scheduling.

Descriptors: Curriculum Development; Curriculum Evaluation; Mathematics; Elementary School Mathematics; Middle Schools; Time; Management; Multimedia Instruction; Needs Assessment; Open Education

Identifiers: Kansas; Pittsburg State University, Pittsburg

Abstract: Presently is assistant professor and curriculum specialist. Achieved doctorate in curriculum and administration. Professional experience at local school level includes teaching in elementary school and junior high school (mathematics) and serving as a curriculum coordinator (science). Describes specialization areas (stressing use of multi-media approach in both small and large group situations) as curriculum development and evaluation; needs assessment; elementary school mathematics; classroom interaction analysis; open education; and time management. Consulting experience includes services to several Kansas school districts as well as to schools out of state. References: W.J. Sandness, Dean School of Education, Pittsburg State University, Pittsburg, KS 66762; and John B. Barnett, Chairperson, Curriculum and Administration, Pittsburg State University, Pittsburg, KS 66762.

End of Abstract

KS

Target Audience: READTEA, MATHTEA, ELEM

Person: Riegel, Arvilla C., 204 N. Lakin St., Box 464, Lakin, KS 67860
(316) 355-6156

Publications:

Training Recs:

Organization: Primary Teacher, Elementary School, Box 26, Lakin, KS 67860
(316) 355-6191, USD 215, Lakin, KS

Availability: Fee not listed; Expenses not listed. Contact for available time

Descriptors: Reading; Mathematics; Elementary Education; Primary Grades; Reading Instruction; Mathematics Instruction

Identifiers: Kansas; USD 215, Lakin

Abstract: Has been employed for 15 years as teacher of grade 1 in Lakin Elementary School. Professional education includes a Master's degree in elementary education and completion of 6 hours toward reading specialist. States areas of specialization as reading and/or mathematics and that services would be directed to primary teachers. References: Dorrell George, District Superintendent, and Charles Ireland, Principal, Elementary School, USD #215, Lakin, KS 67860.

End of Abstract

Kansas Human Resources

KS

Target Audience: TEA, KDG, ELEM

Person: Robb, Gloria A., 521 Akron, Augusta, KS 67010 (316) 775-6166

Publications:

Training Recs:

Organization: Mathematics Consultant, Murdock Teachers Center, 670 N. Edgemoor, Wichita, KS 67208 (316) 682-4597, USD 259, Wichita, KS

Availability: Fee $12.50 per hour or $100 per day; Expenses $30 per day. Workshops: Afternoons 4:30-6:30; Saturdays 9:00-4:00; Summers-contact well in advance.

Descriptors: Mathematics; Manipulative Materials; Elementary School Mathematics; Reinforcement; Metric System; Cross Age Teaching; Group Activities; Workshops; Mathematics Instruction; Learning Laboratories; Consultants.

Identifiers: Kansas; USD 259, Wichita

Abstract: Responsibilities as mathematics consultant for Wichita Teachers Center include conducting inservice training for teachers and monitoring classroom activities to insure ongoing progress of the mathematics program. Has achieved Master's degrees in elementary education from Emporia State University and in administration from Wichita State University. States areas of specialization as the development of manipulative materials to stress hands-on approach to teaching of mathematics; reinforcement techniques used to stress computational skills; providing awareness workshops in metrics; assistance in designing a mathematics program for cross grade level groupings and methods for recording student progress; and presentation of small group activities and center-developed techniques. In addition to other inservice, has provided 23 preservice workshops for Title I Elementary Mathematics Program. References: Coker J. Denton, Chairman, Elementary Education Department, College of Behavioral Sciences, Northeastern Oklahoma State University, Tahlequah, OK 74464; and Danny Harper, District Math Specialist, USD 365, Garnett, KS 66032.

End of Abstract

KS

Target Audience	TEA, KDG, PRI
Person	Roeser, Betty E., 352 N. James, Haysville, KS 67060 (316) 522-5479
Publications	
Training Rscs	Overhead Projector, Screen, Materials-tagboard, folders, etc.
Organization	Title I Mathematics Consultant, Murdock Teacher Center, 670 N. Edgemoor, Wichita, KS 67201 (316) 682-4597, USD 259, Wichita, KS
Availability	Fee $12.50 per hour or $100 per day; Expenses $35 per day. Available as position with school district allows.
Descriptors	Mathematics; Elementary School Mathematics; Kindergarten; Primary Grades; Developmental Programs; Consultants; Mathematics Instruction
Identifiers	Kansas; USD 259, Wichita; Title I

Abstract

For the past 4 years has been a mathematics consultant for the Wichita public schools. Job responsibilities entail visiting primary classrooms, giving demonstration lessons and conducting inservice for teachers in Wichita. Also is mathematics consultant for primary bilingual room in Wichita. Past consultative experiences include being a lead teacher for the Wichita science program. Feels qualified to provide consultative services to teachers, K-3, in the area of developmental mathematics. References: Donald W. Hall, Assistant Superintendent, USD 480, Box 949, Liberal, KS 67901; and Donald R. George, Principal, Nelson Elementary School, USD 261, 245 N. Delos, Haysville, KS 67060.

End of Abstract

KS

Target Audience: TEA, PARVOL, ELEM

Person: Schroeder, Edgar E., 7321 N. Meridian, Wichita, KS 67147 (316) 755-1132

Publications:

Training Recs:

Organization: Coordinator of Mathematics Education, Educational Services Building, 640 N. Emporia, Wichita, KS 67214 (316) 268-7856, USD 259, Wichita, KS

Availability: Fee $100 per day; Expenses $35 per day. Has flexible schedule.

Descriptors: Mathematics; Elementary School Mathematics; Mathematics Instruction; Metric System; Parent Participation; Volunteers; Management Systems; Learning Laboratories

Identifiers: Kansas; USD #259 Wichita

Abstract: As coordinator of mathematics education for the Wichita Public Schools, responsibilities include directing mathematics programs and activities, K-12. Holds Master's degree in mathematics and has worked with elementary teachers for the past several years. Consulting experience includes furnishing assistance to the Garnett school district in setting up a management system for their schools. Specific areas for consultative help are talks on metrics (member of Metric Speakers Bureau); management system for elementary mathematics insturction; and organizing elementary mathematics laboratories which involve parents as volunteers. References: Dr. Lawrence Bechtold, Director of Curriculum, USD 259, Educational Services Building, 640 N. Emporia, Wichita, KS 67214; and Dr. Douglas Hupp, Director of Title I, USD 259, 1847 N. Chautauqua, Wichita, KS 67214

End of Abstract

KS

Target Audience TEA, ELEM

Person Sorenson, Louise M., R.R. 5, Box 76, Salina, KS 67401, (316) 823-2036

Publications

Training Recs

Organization Intermediate Grades Mathematics Teacher, Hawthorne Elementary School, 715 N. 9th St., Salina, KS 67401 (913) 827-1070, USD 305, Salina, KS

Availability Fee none; Expenses none. Contact for services during summers only.

Descriptors Mathematics; Elementary School Mathematics; Mathematics Instruction; Intermediate Grades

Identifiers Kansas; USD 305, Salina

Abstract Presently is employed as a mathematics teacher of students in the intermediate grades (3-6) in the Salina school system. Area of specialization is stated as any facet of elementary mathematics. Attained M.S. in elementary mathematics, Florida State University, Tallahassee, Florida. Previous consulting experience includes teaching one college course (Marymount College) in mathematics for elementary teachers. References: Eva Velharticky, Principal, Hawthorne School, 1308 Highland, KS 67401; and Sister Mary Paul, President, Marymount College, Salina, KS 67401.

End of Abstract

KS

Target Audience: TEA, READ, MATH, ELEM, ADT, POSTSEC

Person: Truby, Charlotte C., 1117 N. Walnut, Beloit, KS 67420 (913) 738-2185

Publications

Training Recs

Organization: Primary Teacher, Beloit Elementary School, 12th and Bell, Beloit, KS 67420 (913) 738-3581; USD #273, Beloit, KS 67420

Availability: Fee $13 per hour, $80 per day; Expenses $35 per day. Available during summers and evenings and/or weekends during school year.

Descriptors: Reading; Curriculum Development; Remedial Reading; Mathematics; Remedial Mathematics; Elementary Education; Adult Education; Remedial Programs; Post Secondary Education

Identifiers: Kansas; USD #273, Beloit

Abstract: Currently works as a teacher, grade 1, on a 3-member team and has taught remedial reading, grades 1-6. Attained M.S. with specialization in reading, University of Missouri at Kansas City, and has achieved additional graduate credit. Has also had training in reading diagnosis. Indicates special skills are in the areas of planning curriculum or in remedial reading and/or mathematics programs. States services would be of value to adults or to teachers of children or adults who need assistance for remedial instruction in mathematics and reading. References: Gail Applebee, Principal, and Mrs. Dawna Gree, Co-team Teacher, Beloit Elementary School, Beloit, KS 67420.

End of Abstract

KS

Target Audience ADM, TEA, PROGDIR, ELEM

Person Zimmer, Nelson E., 216 E. 29th St., Hays, KS 67601 (913) 628-8756

Publications

Training Recs

Organization Assistant District Superintendent, Box 219, Hanston, KS 67849
(316) 623-2611, USD 228, Hanston, KS

Availability Fee $5.00 per hour or $40 per day; Expenses $20 per day. Flexible schedule.

Descriptors Mathematics; Mathematics Instruction; Educational Needs; Educational Objectives; Individualized Programs; Elementary Grades; Reading; Needs Assessment

Identifiers Kansas; USD 228, Hanston

Abstract Currently serves as principal of Hanston High School as well as assistant district superintendent. Describes areas of specialization as needs assessment-Delphi Technique; development of educational goals and objectives; individualized math; and individualized reading. Worked with the State Facilitator (Kansas) program in providing local adaptations of National Diffusion Network programs concerning individualization in reading and mathematics. Also established district-wide goals and objectives for total school system. References: James McElroy, Superintendent, USD 228, Hanston, KS 67849; and Weldon F. Zenger, Associate Professor of Education, Fort Hays State University, Hays, KS 67601.

End of Abstract

KS

Target Audience TEA, READ, MATH, KDG, PRI

Person Ziska, Phyllis J., Route 1, Box 115H, Basehor, KS 66007 (913) 724-1285

Publications

Training Rscs Table for display of materials

Organization Primary Teacher, Basehor Elementary School, Basehor, KS 66607 (913) 724-1038, USD 458, Basehor, KS 66607

Availability Fee not listed; Expenses not listed. Available evenings after 4:00 p.m. on schooldays and on Saturdays. School time would require a release.

Descriptors Reading; Mathematics; Teacher Developed Materials; Kindergarten; Elementary Education Games; Teaching Techniques.

Identifiers Kansas; USD 458, Basehor

Abstract Currently works as a classroom teacher, grade 3, and is departmental teacher of all 3rd grade language arts. Professional education includes Master's degree with specialization in reading, Emporia State University. Would like to share many teacher-made games and ideas for reinforcing skills in mathematics and reading (has had two ideas published in Instructor magazine) with teachers, K-4 levels. References: David Norris, Principal, Elementary School; and Dr. Tony Stansberry, Superintendent, USD 458, Basehor, KS 66007

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